FACTORS AFFECTING OAK MORTALITY
AFTER GYPSY MOTH DEFOLIATIONS

I. Relevant biology/ecology:

A. Trees draw down existing starch reserves to produce leaves, whether for initial annual foliation or refoliation.

B. Starches are converted to sugars during this process, and the sugars that increase appear to be attractive to and favorable for the growth of Armillaria mellea.

C. Repeated defoliation can result in total depletion of starch reserves, so that in extreme cases, trees can literally starve to death, with no starches available for foliation in the spring following repeated episodes of severe defoliation.

D. Dead trees and stumps are foci for A. mellea inoculum.

E. (Houston, D.R. 1981. Forest Stand Relationships p. 267-297 in: Doane, C.C. and M.L. McManus, eds. The Gypsy Moth: Research toward integrated pest management. USDA Science and Education Agency Technical Bulletin 1584. 757 p.) "With respect to cause/effect then, oak decline and mortality must be viewed as a complex. It is initiated by the drastic insult of defoliation, is continued as the tree responds biochemically and as opportunistic organisms invade, and is completed as the invaded tree is girdled and overcome by A. mellea, A.bilineatus, or both. Whether one or both of these organisms become important following a defoliation episode depends on factors that affect their populations levels and conditions, as well as on factors that affect the host tree. Some of these factors [include] defoliation regimen, tree condition, site factors, and species composition . . .

II. Initial tree condition/vigor

A. As estimated using crown condition estimates or initial starch contents of roots.

B. May be a better predictor for white than red oaks (see Doane and McManus p. 253)

C. Interacts heavily with inoculum availability for secondary organisms, time of defoliation, drought, and previous stresses.

III. Defoliation regime

A. Defoliation levels in excess of 60-75% are most highly correlated with death over a single defoliation episode.

B. Repeated heavy defoliation increases the probability of mortality of dominant and codominant trees.

IV. Stand factors

A. Stands can be classified as resistant or susceptible, based largely on species composition and physiographic position. The most susceptible stands are those on dry ridgetops with high proportions of trees from the white oak species, while the most resistant are those with a mixture of predominantly northern hardwood species in mesic conditions.

B. Stands are also classified as to vulnerability. Apparently, the stands most vulnerable to new mortality in good-growing, dominant trees in good condition are those with little previous defoliation history on normally "resistant" sites.

C. Defoliation has occurred, wait 1 to 3 years for mortality to occur.

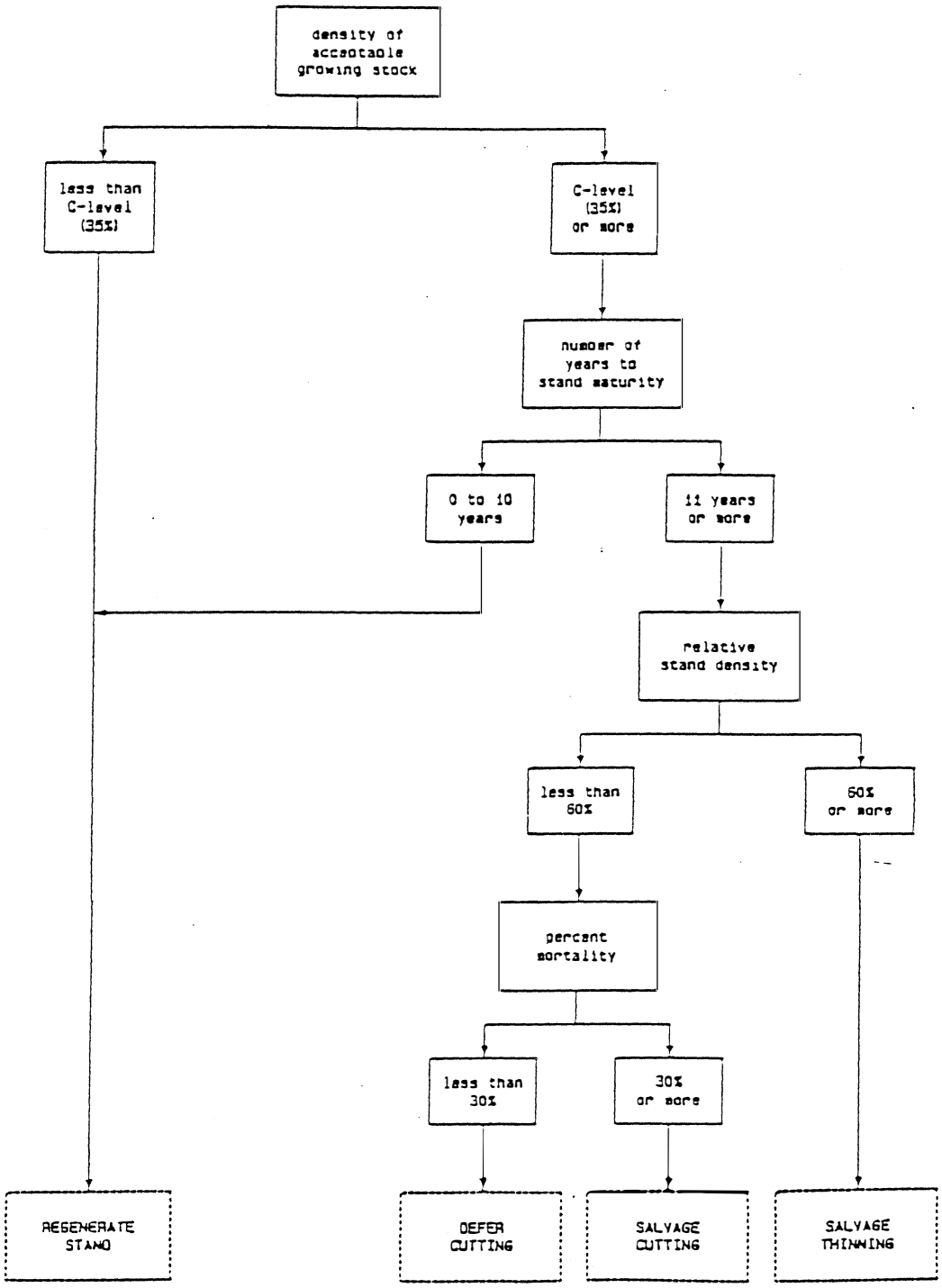
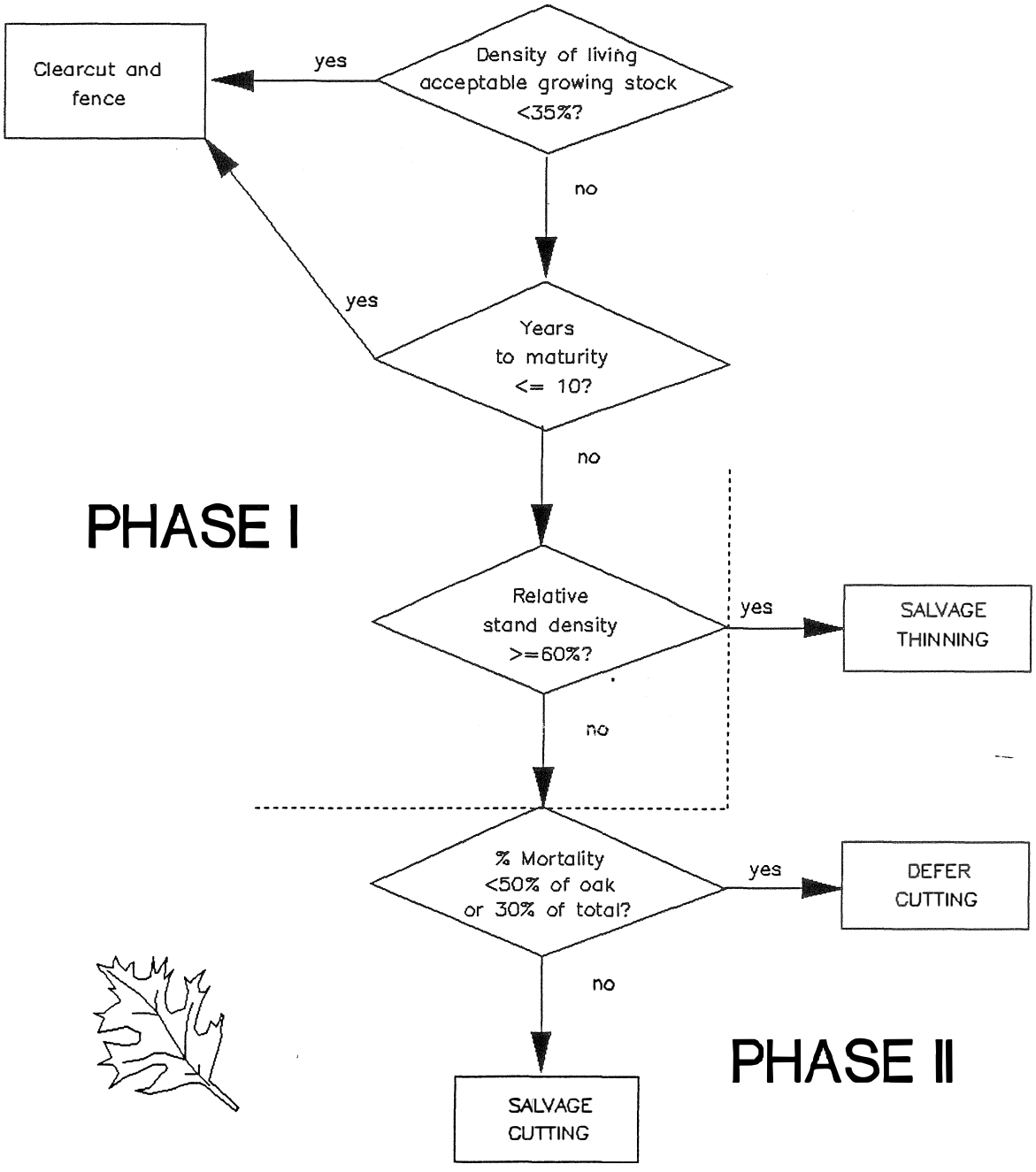


Figure 1 con't.

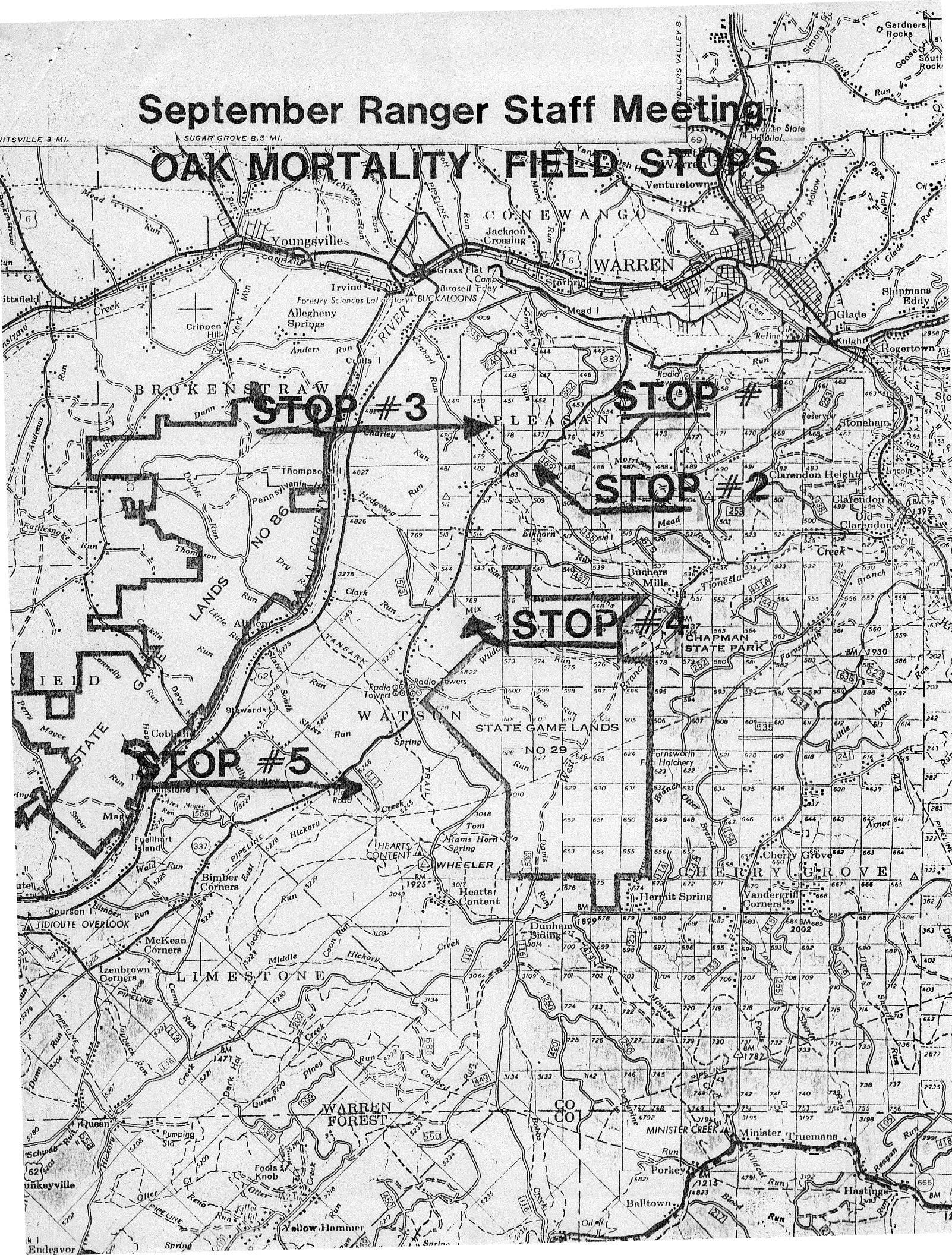
Defoliation has occurred.
Wait 1–3 years for mortality to occur.
(modified for Allegheny National Forest)

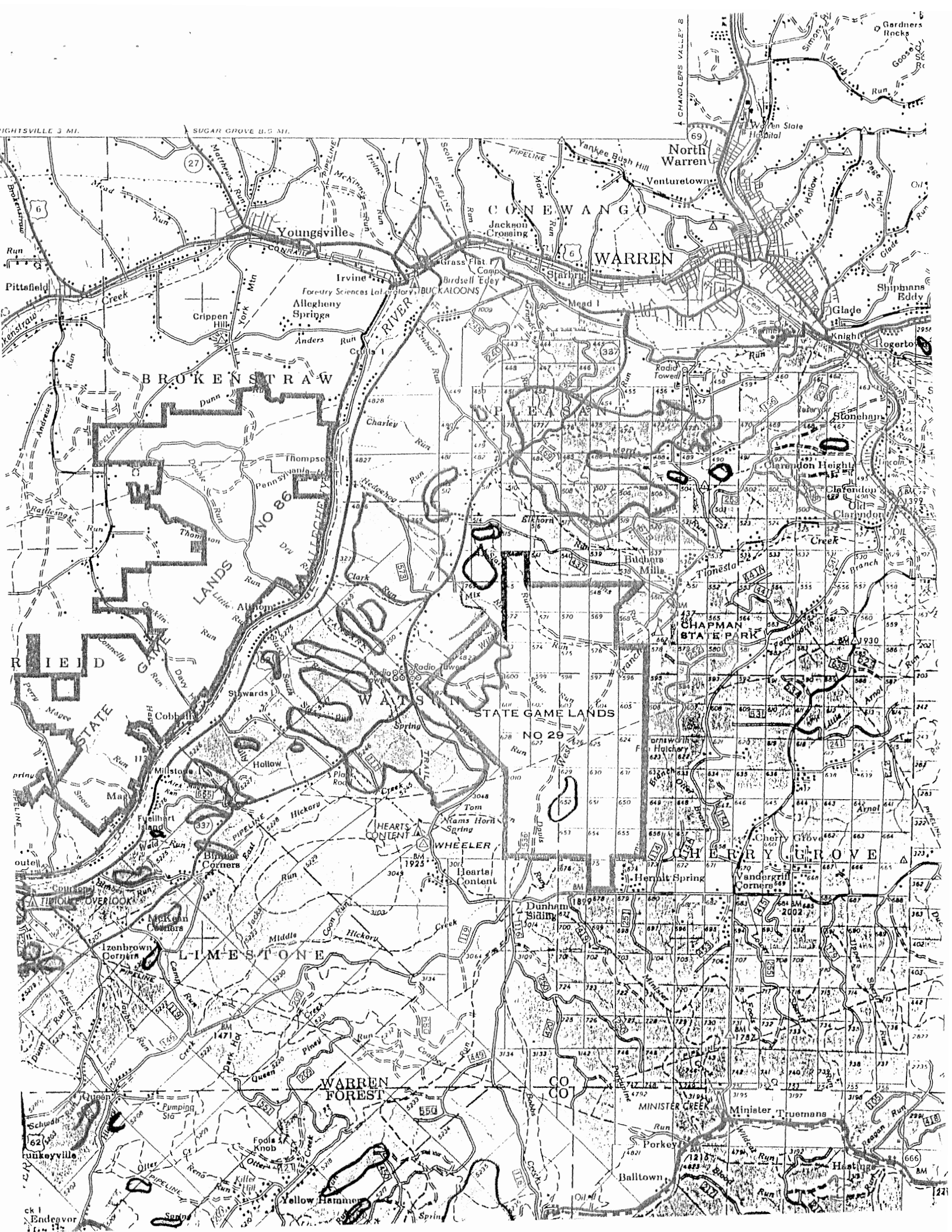


9/27/88

September Ranger Staff Meeting

OAK MORTALITY FIELD STOPS




CHANDLERS VALLEY 8
Gardners Rocks
Warren State Hospital
North Warren
Venturetown
Yankee Bush Hill
CONEWANGO
Jackson Crossing
WARREN
Youngsville
Irvine
Grass Flat Camp
Birdsell Edey
BUCKALOONS
Forestry Sciences Laboratory
Allegheny Springs
Crippen Hill
Pittsfield
Shipmans Eddy
Glade
Knight
Rogerton
Stonehens
Clarendon Heights
Clarendon
Old Clarendon
BROKENSTRAW
DEPLEASANT
Thompson
Pennsylvania
Elkhorn
Budhors Mills
Tionesta
CHAPMAN STATE PARK
Althom
Clark
Mix
Cobham
Stewards
STATE GAME LANDS NO 29
Millstone
Hollow
Fuellhart Island
Hearts Content
WHEELER
Rams Horn Spring
Bittner Corners
Hearts Content
Herbalt Spring
Vandergrift Corners
CHERRY GROVE
Cherry Grove
Dunham Siding
McKean Corners
Izenbrown Corners
LIMESTONE
WARREN FOREST CO
MINISTER CREEK
Minister
Truemans
Porkey
Balltown
Hastings
Foots Knob
Yellow Hammer
Endeavor
Runkeyville
Queen
Pumping Sta
Schwab
Tionesta Creek
Allegheny River
Conewango Creek
Brokenstraw Creek
Pipeline
Parkline

OAK SALVAGE

MA 3 + MA 9.1 DELINEATION GUIDELINES

1. Boundary should be marked with white paint with 3 stripes overtopped with a "X".

2. Include those stands for salvage where 40% of the Oak trees have less than 50% crown missing. Include as on inclusion by painting out w/3 stripes those areas over 5 acres having less mortality than the 40% rule.

3. Delete soil type 3.

4. Stand has to be operable.

5. Reserved trees (5 per acre) will be marked with a "W" at DBH and stump marked on 2 sides.

United States Department of Agriculture
Forest Service
Bradford Ranger District
Star Route 1, Box 88
Bradford, Pennsylvania 16701

Caring for the Land and Serving People

Reply to: 2600

September 14,1988

Subject: Wildlife Guidelines for Oak Salvage in M.A. 6.1

To: Ernie Rozelle, Operations Team Leader

The wildlife direction for M.A. 6.1 is to "emphasize wildlife species which require mature or overmature hardwood forests, such as turkey, bear, and cavity nesting birds and mammals" (pg. 4-110). "Silvicultural systems will be used to achieve the wildlife (and recreation) management objectives" (pg. 4-116). Examples of such species include red-shouldered hawks, bobcats, ovenbirds, some woodland warblers, and to a lesser extent turkeys and bears.

SIZE OF SALVAGE AREA
In M.A. 6.1, temporary openings created by timber management are not to exceed 20 acres but an exception is made for insect and disease attacks. When consistent with wildlife objectives the size may be as large as 25 acres (pg. 4-116 & 117).

In large areas of oak mortality, the featured species would benefit more from several 25 acre salvage cuts with a 200 ft buffer between cuts, than one large cut.

From a wildlife standpoint, I recommend that we not exceed 25 acres in most 6.1 areas. The exception is the case where we have a homogeneous mortality area (with no inclusions, rocky areas, drainages or other characteristics that would break it up into 25 acre cuts) surrounded or adjacent to a large expanse of mature or overmature timber (such as next to a MA 6.4) with very few openings or planned timber harvest. Here we should set our maximum salvage cut at 40 acres. This situation could apply next to the Allegheny Front or on the west side of the Allegheny Reservoir. The larger cut area will benefit black bears by providing cover and forage. Since one objective of M.A. 6.1 is to increase vertical diversity, and cavity nesters are featured species, we should not exceed 40 acres.

PERCENT BASAL AREA AFFECTED
In M.A. 3 the recommendation is to salvage areas with 40% dead or dying oak. I believe we can use this same criteria for 6.1 as long as we retain the following:

Snags* - a dead or a live tree with a dead crown or major dead limbs.

10" to 16" dbh	3 snags/acre	pg. 4-113
18" to 24" dbh	3 snags/acre	
> 24" dbh	3 snags/acre	

Den Trees* - trees with a nesting cavity
3-5 trees with a nesting cavity per acre with a minimum dbh of 14" pg. 4-121

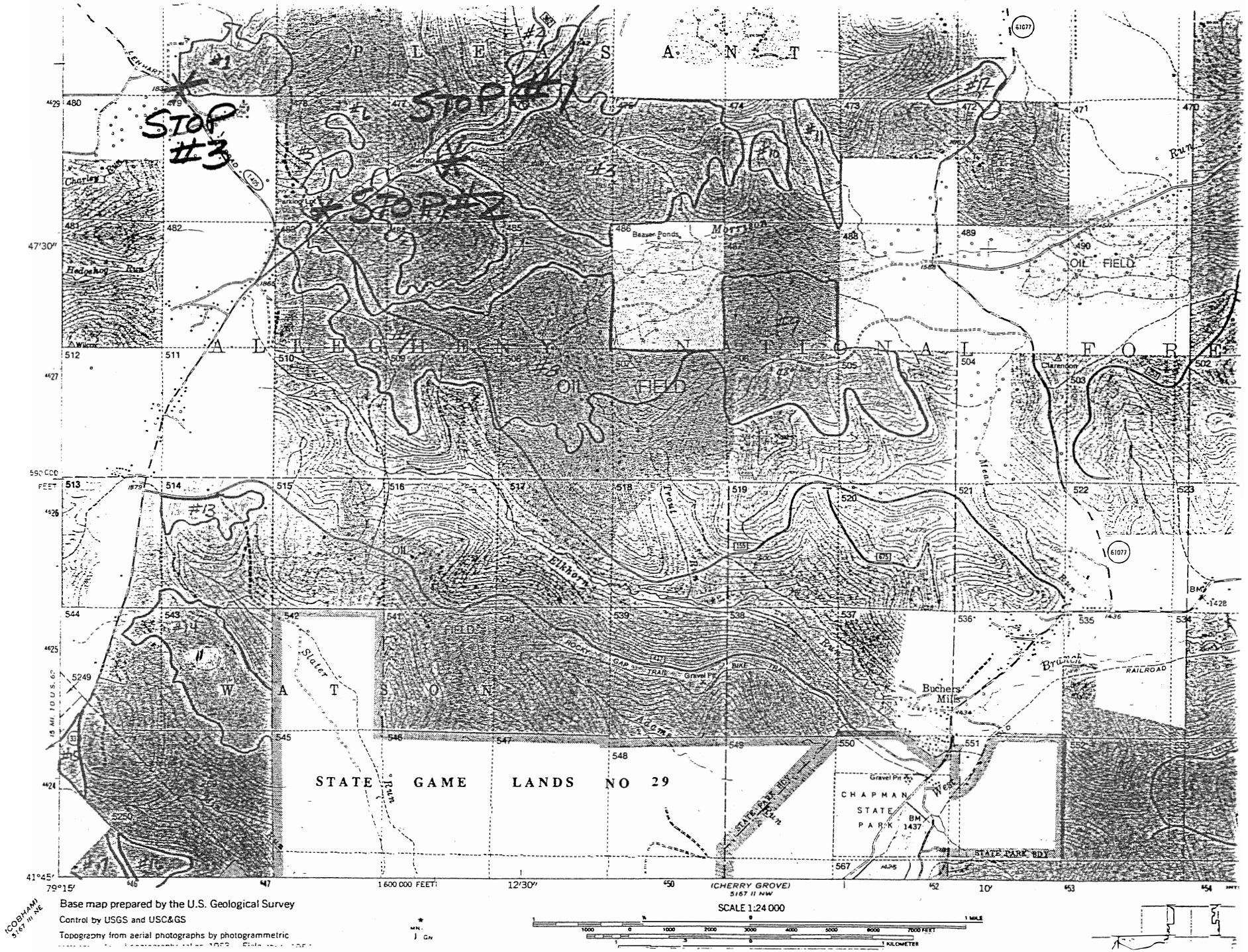
*These do not all have to be oak. Beech, cucumber, hickory, and others make good snags, den trees, and could even produce some mast. All species other than oak should be retained. Ideally, all wildlife reserve trees should be marked, but due to the short timeframe involved, I will agree to the decision of the team. (My philosophy has always been, if its worth saving its worth marking.)
(Please note that M.A. 3 requires 4-6 live den trees/acre with a minimum dbh of 14" be retained in the oak type).

PERCENT OF M.A. 6.1 TO CUT
The Plan calls for 1,000 acres/year or 10,000 acres in the first decade to be cut (final harvest, thinning, or selection cut) pg. 4-112. This is one tenth of the whole M.A. 6.1. We should be careful to distribute our salvage cuts throughout M.A.6.1 and not cut too heavily in any one segment. Generally speaking, cutting more than a third of any 6.1 area would have detrimental effects to the featured species.

ACCESS
Since one of our goals is to provide habitat for species requiring isolation, we should discourage road building into drainages and hollows where no roads currently exist. Even if the road is closed and seeded, we have increased forest fragmentation, which may increase avian predation on forest interior species. (This is compatible with our goal of maintaining the integrity of the area for dispersed recreation, especially hunting).

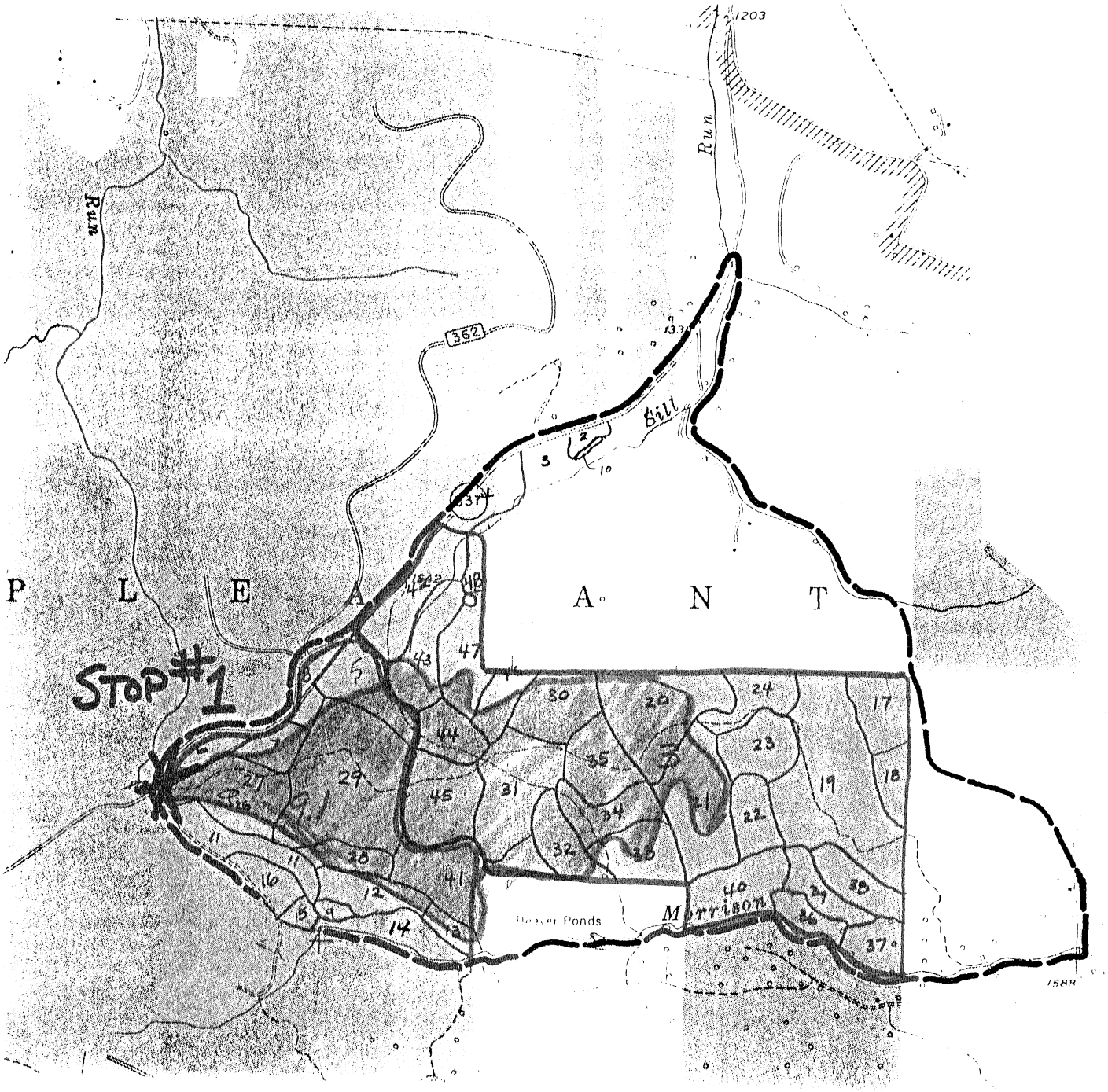
WILDLIFE OPENINGS
We should not overlook the opportunity to create some permanent wildlife openings up to 5 acres in size (5-10% of MA 6.1). Openings for deer and summer turkey broods are usually planted in grasses and legumes and access is need for annual mowing. Turkey wintering areas are planted with shrubs, fenced, and are located below 1800 feet in elevation, usually on a south or southwest facing slope. A biologist should assist with layout and design of these openings.

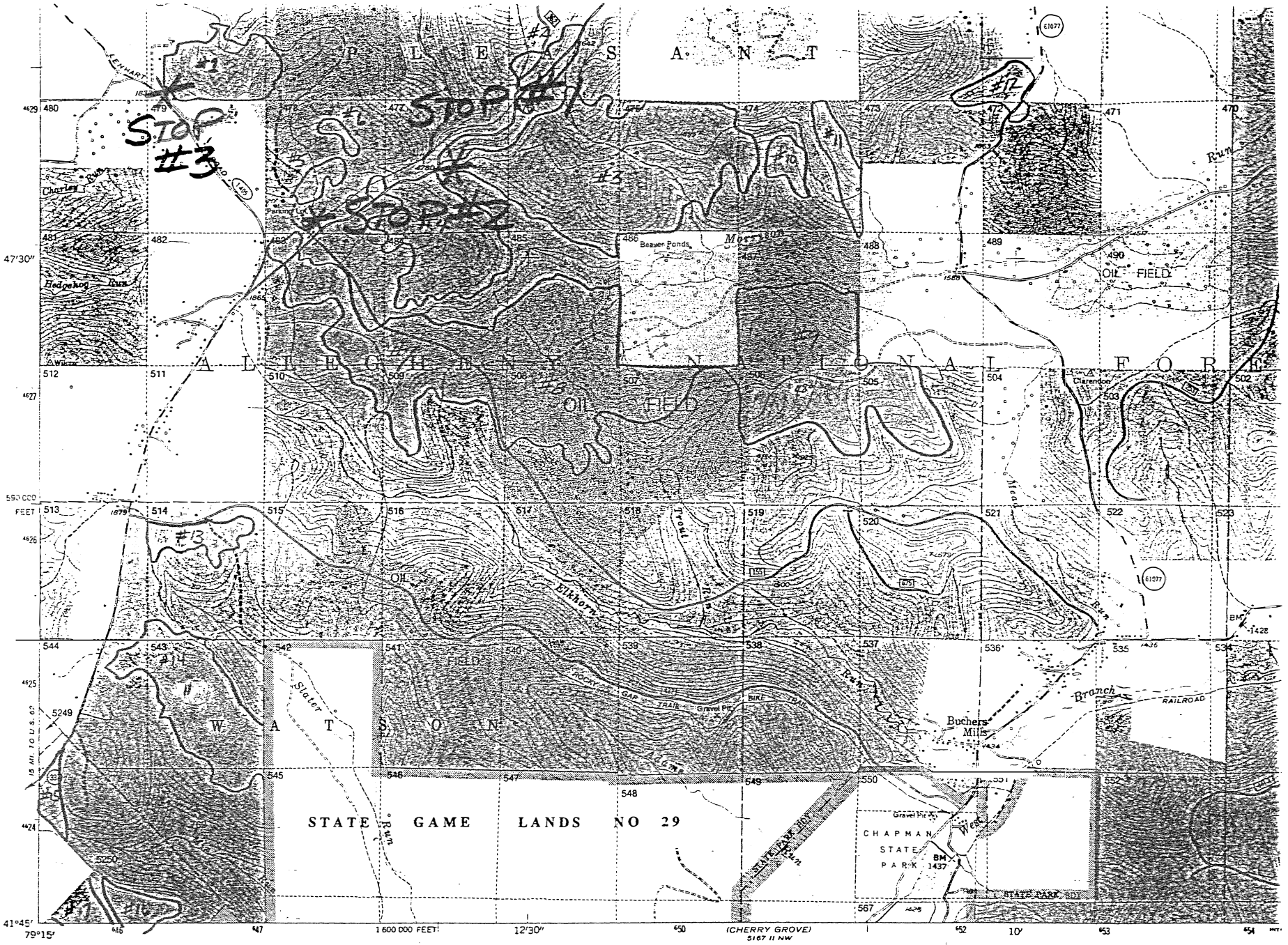
BRAD B. NELSON
Forest Wildlife Biologist

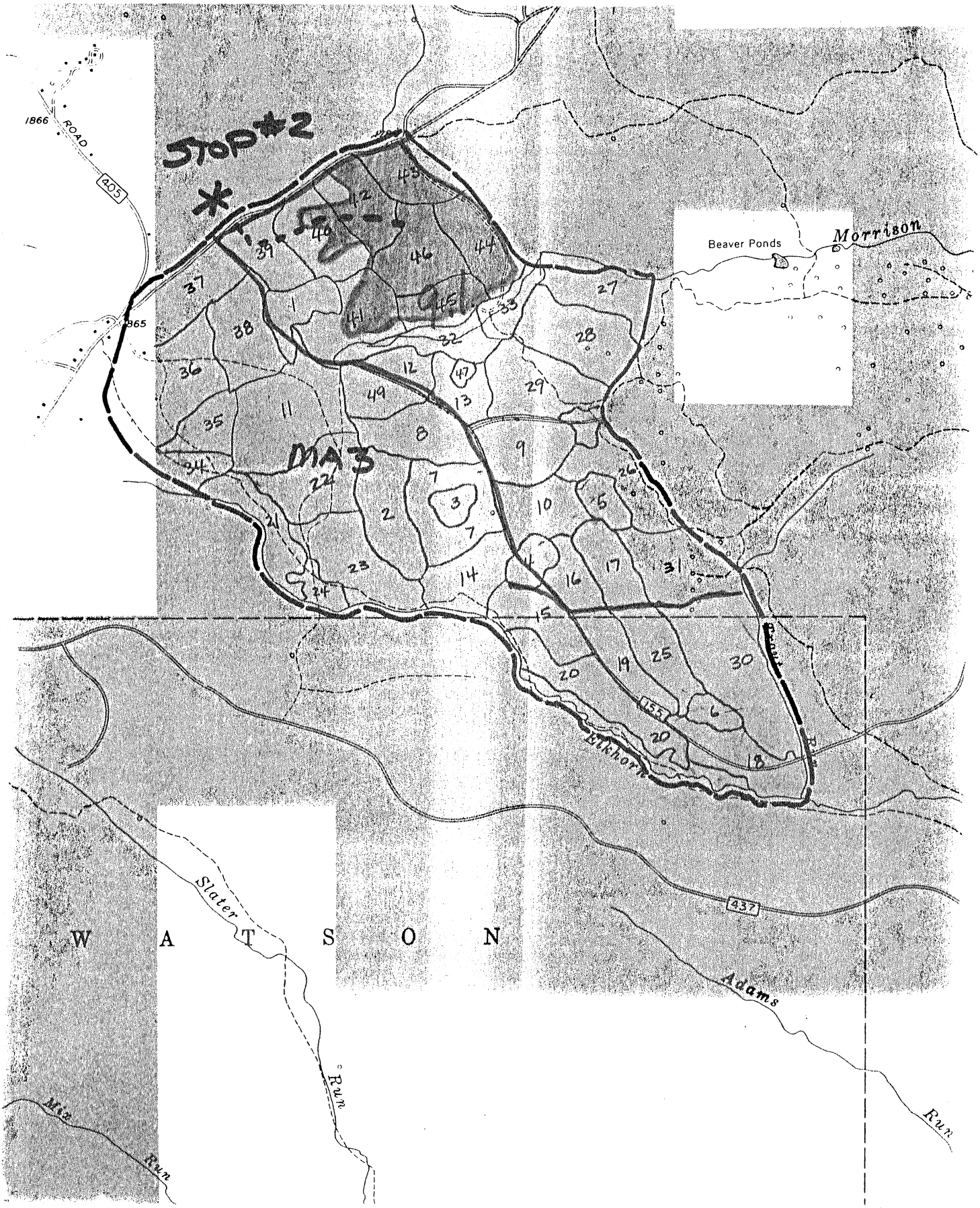


Base map prepared by the U.S. Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric

MA 3
MA 9.1


Run
1203
Run
362
1334
Gill
P L E A
A N T
STOP #1
Beaver Ponds
Morrison
1588


STOP #1
STOP #2
STOP #3
#4
#5
#6
#7
#8
#9
#10
#11
#12
#13
#14
#15
#16
#17
PLEASANT
ALLEGHENY
NATIONAL FOREST
WATSON
OIL FIELD
STATE GAME LANDS NO 29
CHAPMAN STATE PARK
Buchers Mills
Elkhorn Run
Trout Run
Slater Run
Mead Run
Beaver Ponds
Hedgehog Run
Clarendon
Gravel Pit
RAILROAD
STATE PARK RD
47°30"
41°45'
79°15'
1 600 000 FEET
12'30"
(CHERRY GROVE) 5167 II NW
(COBHAM) 5167 III NE
SCALE 1:24 000
Base map prepared by the U.S. Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric


Stop #2
1866 ROAD
405
965
Beaver Ponds
Morrison
MA 3
Elkhorn
Slater Run
Adams Run
Mill Run
437
W A T S O N

Plots by Wingate & Steffan

Forest ___ (1 2) District ___ (3 4) Comp No. ___ (5 6 7) Stand No. ___ (8 9 10) Card No. 01 (11 12) Prescriber ___

Stand Acres ___ (13 14 15) Land Class ___ (16 17 18) Type Survey 9 3 (19 20 21) Exam Date ___ (22 23 24 25) Elevation ___ (26 27 28 29) Aspect ___ (30 31 32)

0

AK
SAL,
R,337
3-1

Plot No	Type Site Density	Total B.A.	Std. Condition	Mgmt Obj.	Ave. DBH	CULTURAL NEEDS Fund	Activity	Priority	Method	Treatmt Modif	Fund	Activity	Priority	Method	Treatmt Modif	Fund	Activity	Priority	Method	Treatmt Modif	TSI D.A.	Opera.	Slope Percent	Slope Position	Damage	Stocking	CAPS	Sand S %BC %DES %SAP Tot %
Stand	33-35	36-37	38	39-41	42-43	44	45-47	48	49	50	51	52 54	55	56	57	58	59-61	62	63	64	65	66	67-68	69	70-72	73-74	75	76-77 78:79
ID Prescription Card 03																												

Card Code 08

TREE DATA

Plot 01A

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			833	14	4
01			833	10	4
01			802	8	4
01			832	10	1
01			832	14	1
01			833	16	4

Plot 01B

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			833	8	4
01			832	10	1
01			802	8	2
01			832	10	1

Plot 02A

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			802	06	1
01			833	16	4
01			833	12	4
01			802	08	2
01			833	22	4
01			832	10	4

Plot 02B

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			802	10	2
01			833	12	4

Plot 03A

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			832	10	4
01			32	12	1
01			32	14	2
01			32	10	4
01			32	06	1
01			32	06	4

Plot 03B

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
02			833	08	4
02			33	10	4
01			33	12	4
01			32	12	4

Plot 04B

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			833	16	4
01			33	14	4
02			33	08	4
01			33	10	4
01			32	10	1
01			32	12	1

Plot 04B

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			832	08	1
01			832	06	4
01			316	04	1
01			316	02	1
01			832	10	3
01			832	10	1

Plot 05A

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			832	12	1
01			832	06	2
01			832	10	2
01			832	04	3
01			316	04	1
01			832	14	2

Plot ___

No.	C/R S	C/R I	Spec.

Card No. CONTINUED (11 12) SPECIAL FEATURES

Within Stand Features (13 15) (16 18) (19 21) (22 24)

Special Management Area (28 29) (30 31) (32 33) (34 35) (36 37)

Plot 05B

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			832	04	1

Plot 05C

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			833	10	4
01			832	08	3
01			832	12	2
01			316	04	1
01			832	14	2
02			833	10	4

Plot 06A

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
02			832	08	2
01			832	14	1
01			832	08	3
01			316	06	1
01			833	16	4
01			832	12	2

Plot 06B

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			832	16	4
01			316	02	1
01			833	12	4

Plot 07A

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			833	18	4
02			33	10	2
01			32	12	4
01			33	14	2
01			33	14	1
01			32	12	1

Plot 07B

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			832	16	1
01			33	04	1
01			32	14	1
01			33	18	4
01			316	08	1
01			316	06	1

Plot 04C

No.	C/R S	C/R I	Spec.	DBH	AU DM CL
01			833	14	3

Plot ___

No.	C/R S	C/R I	Spec.

REGENERATION DATA

No. Plots	Tally Cnty	Hardwood	Oak	Lg Oak	Any Brsh	Brsh Cnty	Any Wdy Brsh	Dam Brsh	Pct Lt.	Rem
1		20	5							
2	+	+	2							R
3		20	1							Aspen
4		8	2							
5		+	1							
X										
7	1	2	5					2		
8	1		3							
9		10	5							
10		3	2					1		
11			2							R
12		5	2							R
13		20	2							R
14		20	7							R
15		+								
16		25	2							
17		10	9							WP
18		+	1							
19		20	.				(Snag)			WP
20		30								WP

Present Stand	Mgt. Obj.
Site Species ___ (13 15)	___ (16 18)
Site Index ___ (19 20)	___ (22 24)
SI Reliability	
Std. Yr. of Origin ___ (26 28)	___ (25)
Radial Growth ___ (29 30)	

* (Enter 32 Blank Spaces) * (31 62)

63 ← Enter "1" if tree data on Card code 08's exist

No. of Plots ← Card Code 08 Plots. ONLY (64-65)

Stand Action Code ← Record Action Code only if different from Action Code on Card Code 01 (66 67)

Remarks: Card No. 06 & 07

Card No. 04 (11 12)

OPTIONS: INV, PRINT, OUT, RUN, Rec, Sp

SITE FACTORS: SITE CLASS, HT. ADJ., Sp, Sp

Special W/L ECS. LAMP IMP. & MONITORING COMPONENT

Veg. Typ (13 15)	Structure (16 17 18 19 20 21)	H/c Obj. (22 23 24)	Cap Index (25 26 27)	An Hab (28 29)	LTA (30 31)	ELT (32 33)	Mgt. Presc (34 35)	Mon? (36 37 38 39)

UAM/CAM (44)	Pr. Special Unit (45 46 47 48 49 50 51 52)	Sec. Special Unit (53 54 55 56 57 58 59 60)	Analysis Area (61 62 63 64)	Built (65 66)	Parplan No (67 68 69 70)

Forest ___ (1 2) District ___ (3 4) Comp No. ___ (5 6 7) Stand No. ___ (8 9 10) Card No. 0 7 (11 12) Prescriber ___

Stand Acres ___ (13 14 15) Land Class ___ (16 17 18) Type Survey 9 3 (19 20 21) Exam Date ___ (22 23 24 25) Elevation ___ (26 27 28 29) Aspect ___ (30 31 32)

Plot No	Type Site Density	Total B.A.	Std. Condition	Mgmt. Obj.	Ave. DBH	CULTURAL NEEDS: Fund	Activity	Priority	Method	Treatment Modif.	Fund	Activity	Priority	Method	Treatment Modif.	Fund	Activity	Priority	Method	Treatment Modif.	TSI D.A.	Opera.	Slope Percent	Slope Position	Damage	% Stocking	CAPS	S and S: % BC	% DES	% SAP	Tot. %
Stand	33-35	36-37	38	39-41	42-43	44	45-47	48	49	50	51	52 54	55	56	57	58	59-61	62	63	64	65	66	67-68	69	70-72	73-74	75	76-77	78-79		
10 Prescription	Card 03																														

TREE DATA

Card Code 08

Plot 08A

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			833	14	2
02			802	10	1
03			802	06	4
01			802	12	3
01			833	10	4
01			832	16	1

Plot 08B

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			832	06	2
01			833	16	3
01			316	04	1
01			651	14	1
01			316	16	1

Plot 09A

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			833	16	4
01			02	06	4
01			02	18	4
01			33	12	4
01			33	08	2
01			32	14	1

Plot 09B

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			802	08	2
01			32	14	1
01			33	14	2
01			33	06	2
01			316	12	1

Plot 10A

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			802	10	1
04			02	08	1
01			33	18	4
03			02	08	2
01			33	08	4
01			02	10	4

Plot 10B

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			802	12	1
01			02	06	4
01			33	14	4
			02	12	3

Plot 11A

No	C/R S	C/R I	Spec.	DBH	AU OW CL
04			833	16	4
01			33	14	4
01			33	24	4
02			33	12	4
01			02	10	4

Plot 11B

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			316	4	
02			316	2	
01			316	06	1

Plot 12A

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			833	16	4
01			132	14	1
03			33	18	4
01			02	08	2
01			33	16	2

Plot 12B

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			316	06	1
01			316	04	1

Plot 13A

No	C/R S	C/R I	Spec.	DBH	AU OW CL
04			833	14	4
01			32	14	4
03			33	16	4
01			02	12	3
02			33	18	4
01			02	08	4

Plot 13B

No	C/R S	C/R I	Spec.	DBH	AU OW CL
02			33	16	3
01			316	12	1
01			316	14	1
01			694	04	1

Plot 14A

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			833	14	2
01			32	14	1
01			32	16	3
01			32	16	4
01			33	12	4
01			32	18	4

Plot 14B

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			33	14	2
01			33	06	3
01			33	16	2
01			32	10	1
01			316	02	1
03			316	04	1

Plot 14C

No	C/R S	C/R I	Spec.	DBH	AU OW CL
01			802	14	1
01			832	18	1

Plot ___

No	C/R S	C/R I	Spec.	DBH	AU OW CL

Plot ___

No	C/R S	C/R I	Spec.

Card No. 1 1 (11 12) SPECIAL FEATURES

Within Stand Features (13 15 | 16 18 | 19 21 | 22 24)

Special Management Area (28 29 | 30 31 | 32 33 | 34 35 | 36 37)

REGENERATION DATA

No. PLOTS	WESTERN HEMLOCK	WESTERN HARDWOODS	DOUGLAS-FIR	OREGON WHITE OAK	CALIFORNIA BLACK OAK	PACIFIC MADRONE	PACIFIC DOGWOOD	ANTLER WILLOW	BIGLEAF MAPLE	DECID. MISC.	EVERGREEN MISC.
21	2	5									
22	1	1							2		
23											
24	1	1									
25		6	1								
26		6									10
27		10									
28		1							1		
29		1							1		
30		+									
11											
12											
13											
14											
15											
16											
17											
18											
19											
10											

Present Stand	Mgt. Obj.
Site Species ___ (13 15)	(16 18)
Site Index ___ (19 20)	(22 24)
SI Reliability	
Std. Yr. of Origin ___ (26 28)	(25)
Radial Growth ___ (29 30)	

Card Code 11 12

(Enter 32 Blank Spaces) (31 62)

63 ← Enter "1" if tree data on Card code 08's exist

No. of Plots (64-65) ← Card Code 08 Plots. ONLY

Stand Action Code (66 - 67) ← Record Action Code only if different from Action Code on Card Code 01

Remarks: Card No. 06 & 07

Card No. 0 6 (11 12)

OPTIONS						SITE FACTORS					
PLANT	PRUNE	THIN	RELEASE	FERT.	SPEC.	SITE CLASS	HT. ADJ.				

Card No. 04 (11.12) Special W/L ECS.LRMP IMP. & MONITORING COMPONENT

(13 15) Veg. Typ	(16 17 18 19 20 21) Structure	(22 23 24) H/c Obj.	(25 26 27) Cap Index	(28 29) An Hab	(30 31) LTA	(32 33) ELT	(34 35) Mgt. Presc	(36 37 38 39) Mon?

(44) UAM/EAM	(45 46 47 48 49 50 51 52) Pr. Special Unit	(53 54 55 56 57 58 59 60) Sec. Special Unit	(61 62 63 64) Analysis Area	(65 66) Suit	(67 68 69 70) Pamplan No

Forest 1 2 | District 3 4 | Comp No. 5 6 7 | Stand No. 8 9 10 | Card No. 11 12 | Prescriber

Stand Acres 13 14 15 | Land Class 16 17 18 | Type Survey 19 20 21 | Exam Date 22 23 24 25 | Elevation 26 27 28 | Aspect 30 31 32

Plot No	Type Site Density	Total B.A.	Std. Condition	Mgmt Obj.	Ave. DBH	CULTURAL NEEDS: Fund	Activity	Priority	Method	Treatmt Modif	Fund	Activity	Priority	Method	Treatmt Modif	Fund	Activity	Priority	Method	Treatmt Modif	TSI B.A.	Opera.	Slope Percent	Slope Position	Damage	S and S: Stocking	CAPS	% BC	% DES	% SAPS	Tot %
Stand	33-35	36-37	38	39-41	42-43	44	45-47	48	49	50	51	52 54	55	56	57	58	59-61	62	63	64	65	66	67-68	69	70-72	73-74	75	76-77	78-79		
10 Prescription		Card 03																													

Card Code 08

TREE DATA

Plot 15A

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
03			833	18	4
01			02	18	2
01			33	16	4
01			02	22	2
01			33	12	2
01			33	10	2

Plot 15B

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			833	12	4
01			833	10	4
01			316	06	1
02			316	14	1

Plot 16A

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
05			833	08	4
02			33	10	4
02			33	14	4
01			33	16	4
01			33	12	4
01			02	16	4

Plot 16B

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
02			316	06	1

Plot 17A

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			833	16	2
01			33	10	4
01			33	20	4
01			33	08	4
01			33	12	4
01			02	10	4

Plot 17B

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			802	06	4
			316	02	1

Plot 18A

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			833	16	3
01			33	20	4
01			32	24	1
02			02	10	2
03			02	10	1
			02	14	3

Plot 18B

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			833	14	4
01			02	06	4
01			316	12	
01			316	14	
01			762	06	1
01			316	06	1

Plot 18C

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			316	08	1

Plot ____

No.	C/R S	C/R I	Spec.

Plot 19A

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			833	22	4
03			133	12	4
04			33	14	4
02			33	18	4

Plot 19B

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
03			316	14	
01			316	10	

Plot 20A

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
02			833	20	4
01			33	18	2
01			33	10	4
01			33	12	4
01			02	20	3
01			02	20	4

Plot 20B

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			833	18	4
01			33	14	4
01			316	02	1
02			316	06	1

Plot 21A

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			832	16	1
01			33	18	3
01			33	22	1
01			32	20	2
01			32	10	2
01			32	10	3

Plot 21B

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			833	26	4
01			802	18	4
01			762	20	1
01			316	06	1

Plot 22A

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
02			833	18	4
01			33	16	4
01			33	10	4
03			33	14	4
03			33	12	4
01			33	14	1

Plot 22B

No.	C/R S	C/R I	Spec.	DBH	AU OM CL
01			832	14	1
			316	10	1

Card No. 11 (11 12) SPECIAL FEATURES

Within Stand Features

13 15	16 18	19 21	22 24

Special Management Area

28 29	30 31	32 33	34 35	36 37

REGENERATION DATA

No. PLOTS	LAND CLEARING	WILDLINGS	OAK	OAK	ANTERIOR	RESID	ANY W/ RESID	SAP ANTERIOR	DEC. INT.	REM
31		+								
32		10								
33		7	4							
34		7								WI
35		+						1		
36		20	2							
37	1	20								
38		+								
39		+	4							
40		+						1		
41	1	10								
42										old road
43	1	20	2							
44		+								
45	6	6								
46			1							
47			1							
48		+								VI
49			1							W
50		10								

Present Stand	Mgt. Obj.
Site Species 13 15	16 18
Site Index 19 20	22 24
SI Reliability	
Std. Yr. of Origin 26 28	25
Radial Growth 29 30	

Card Code 11 12

(Enter 32 Blank Spaces)

31 62

63 ← Enter "1" if tree data on Card code 08's exist

No. of Plots 64-65 ← Card Code 08 Plots. ONLY

Stand Action Code 66-67 ← Record Action Code only if different from Action Code on Card Code 01

Remarks: Card No. 06 & 07

Card No. 04 (11 12)

OPTIONS | SITE FACTORS (SITE CLASS, HT. ADJ.)

Special W/L ECS. LAMP IMP. & MONITORING COMPONENT

13 15	16 17 18 19 20 21	22 23 24	25 26 27	28 29	30 31	32 33	34 35	36 37 38 39
Veg. Typ	Structure	M/C Obj.	Cap Index	An Hab	LTA	ELT	Mgt. Presc	Mon2

44	45 46 47 48 49 50 51 52	53 54 55 56 57 58 59 60	61 62 63 64	65 66	67 68 69 70
UAM/CAM	Pr. Special Unit	Sec. Special Unit	Analysis Area	Suit	Poplan Rx

Stand No. _____ Card No. 01 7 Prescriber _____

Stand Acres _____ Land Class _____ Type Survey 9 3 Exam Date _____ Elevation _____ Aspect _____

(3)

Plot No	Type Site Density	Total B.A.	Std. Condition	Mgmt. Obj.	Ave. DBH	CULTURAL NEEDS Fund	Activity	Priority	Method	Treatment Modif	Fund	Activity	Priority	Method	Treatment Modif	Fund	Activity	Priority	Method	Treatment Modif	TSI B.A.	Opera.	Slope Percent	Slope Position	Damage	Stocking	CAPS	S and S %BC %DES %SHRS TOT %
Stand	33-35	36-37	38	39-41	42-43	44	45-47	48	49	50	51	52 54	55	56	57	58	59-61	62	63	64	65	66	67-68	69	70-72	73-74	75	76-77 78-79
10 Prescription	Card 01																											

Card Code 08

TREE DATA

Plot 23A

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			833	10	4
02			33	16	4
02			33	12	4
01			02	10	2
01			33	14	4
01			33	12	2

Plot 23B

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			316	04	1
01			316	02	1

Plot 24A

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			832	16	1
01			02	14	1
01			02	18	2
01			02	20	1
01			02	12	1
01			02	20	1

Plot 24B

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			802	06	4
01			33	18	4
01			02	08	2
01			02	10	1
01			02	08	1
01			316	10	1

Plot 25A

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			802	16	4
01			02	08	1
01			02	20	1
01			02	10	1
01			33	18	4
01			33	24	1

Plot 25B

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			802	12	2
01			802	20	2
01			802	14	2
01			803	12	1
02			316	06	1
01			316	04	1

Plot 26A

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			832	16	4
01			02	08	4
01			32	22	2
01			32	20	2
01			02	14	4
01			33	20	2

Plot 26B

No	C/R S	C/R I	Spec.	DBH	AU OU CL
02			832	18	1
01			02	10	4
01			32	12	1
01			33	22	4
01			316	04	1

Plot 27A

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			833	10	4
03			33	14	4
01			02	08	3
01			33	10	4
02			33	14	2
01			33	20	4

Plot 27B

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			316	08	1
01			316	14	1
01			316	06	1

Plot 24C

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			833	14	4
01			833	12	4
01			316	18	1
01			999	06	1

Plot 28A

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			833	12	4
03			33	16	4
02			33	16	2
01			33	16	1
01			33	12	2
01			33	14	2

Plot 28B

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			833	16	3
01			33	10	4
01			316	12	1
01			316	08	1

Plot 29A

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			833	20	4
01			02	16	2
01			02	12	2
01			33	14	3
01			33	20	2
01			33	18	4

Plot 29

No	C/R S	C/R I	Spec.	DBH	AU OU CL
01			802	12	2
01			833	16	4
01			316	06	1
01			129	26	1
01			316	10	1

Plot ____

No	C/R S	C/R I	Spec.	DBH	AU OU CL

Plot ____

No	C/R S	C/R I	Spec.

Card No. 11 (11 12) SPECIAL FEATURES

Within Stand Features

13 15	16 18	19 21	22 24

Special Management Area

28 29	30 31	32 33	34 35	36 37

REGENERATION DATA

No. PLOTS	TALLY	NO. SEEDLINGS	SM. OAK	LG. OAK	ANT. FROM	BRUSH	ANT. SEED	SAP.	SEL.	BURN
51		2								WP
52		7	1							
53		10								
54		+								
55		20								
56		+								
57		+								
58	+	+	4							WP
9	4	+	5							
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										

Present Stand	Mgt. Obj.
Site Species 13 15	16 18
Site Index 19 20	22 4
SI Reliability	
Std. Yr. of Origin 26 28	25
Radial Growth 29 30	

11 12

(Enter 32 Blank Spaces)

31 62

63 ← Enter "1" if tree data on Card code 08's exist

No. of Plots 64-65 ← Card Code 08 Plots ONLY

Stand Action Code 66-67 ← Record Action Code only if different from Action Code on Card Code 01

Card No. 06 (11 12)

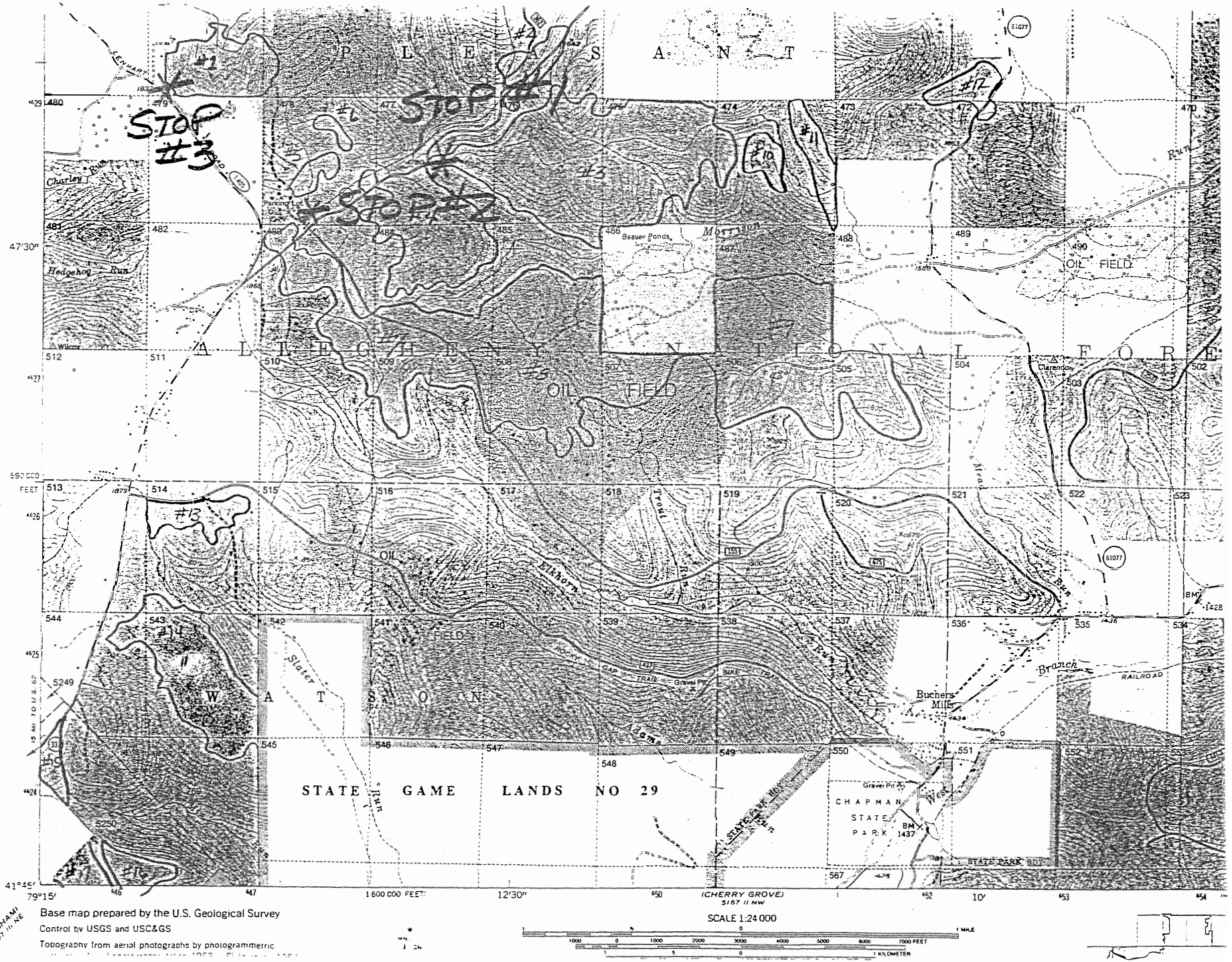
OPTIONS	SITE FACTORS	
	SITE CLASS	HT. ADJ.

Remarks: Card No. 05 & 07

Card No. 04 (11 12) Special U/L Eco. Land Imp. & Monitoring Component

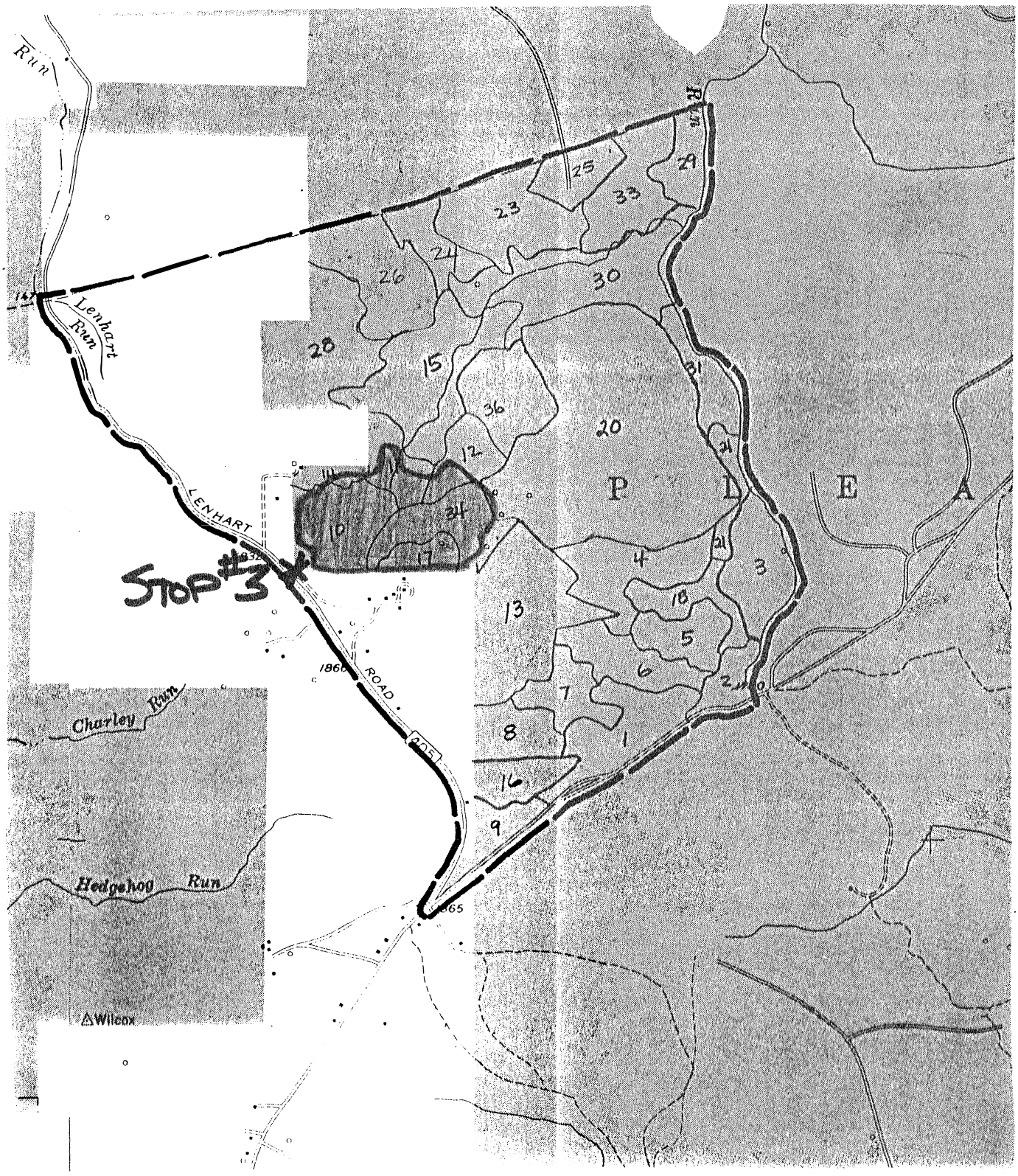
13 15	16 17 18 19 20 21	22 23 24	25 26 27	28 29	30 31	32 33	34 35	36 37 38 39
Veg. Typ	Structure	H/c Obj.	Cap. Index	An. Hab	LTA	ELT	Mgt. Prest	Mon?

44	45 46 47 48 49 50 51 52	53 54 55 56 57 58 59 60	61 62 63 64	65 66	67 68 69 70
UAM/CAM	Pr. Special Unit	Sec. Special Unit	Analysis Area	Stat	Jordan Nr.



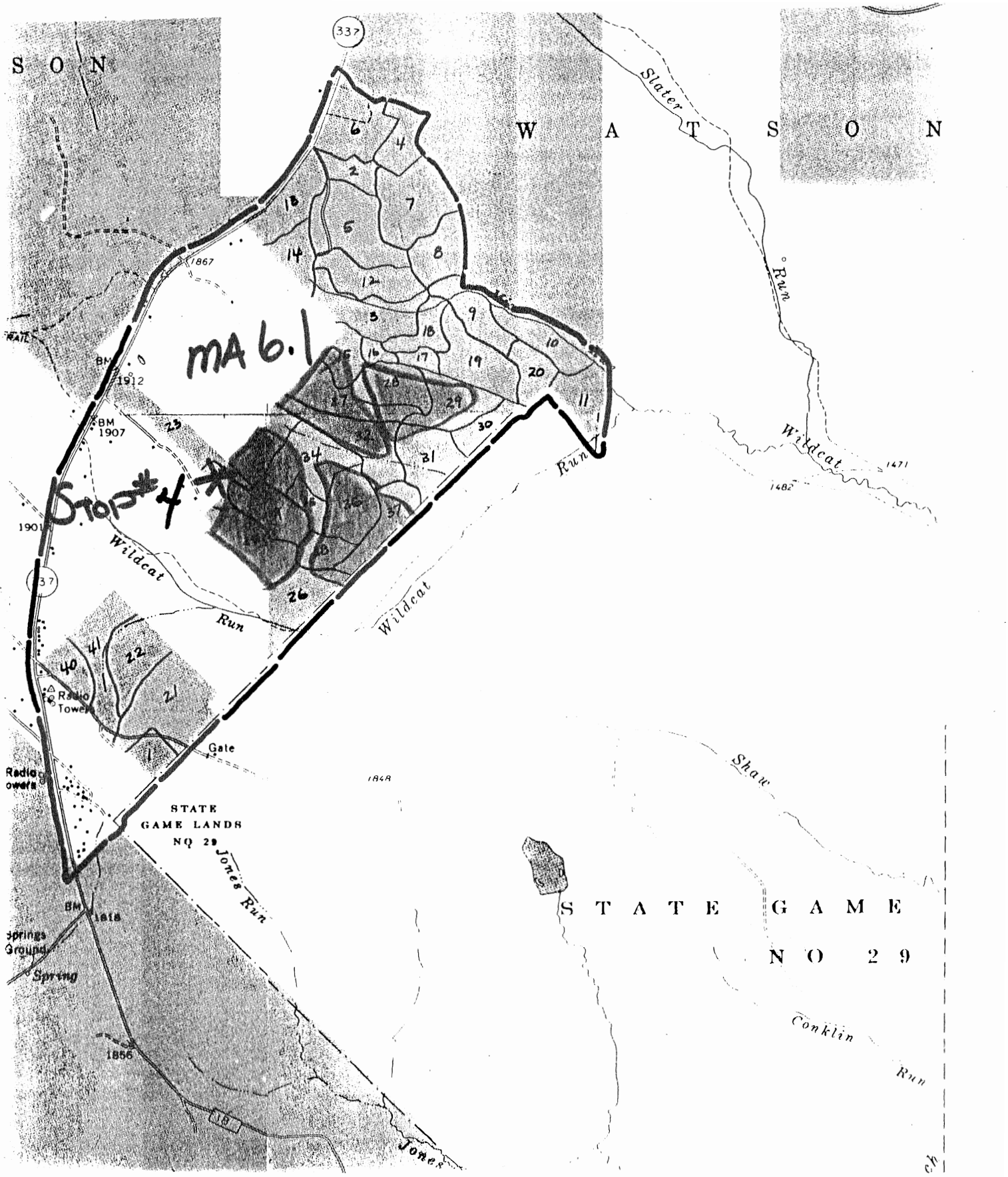
Base map prepared by the U.S. Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric

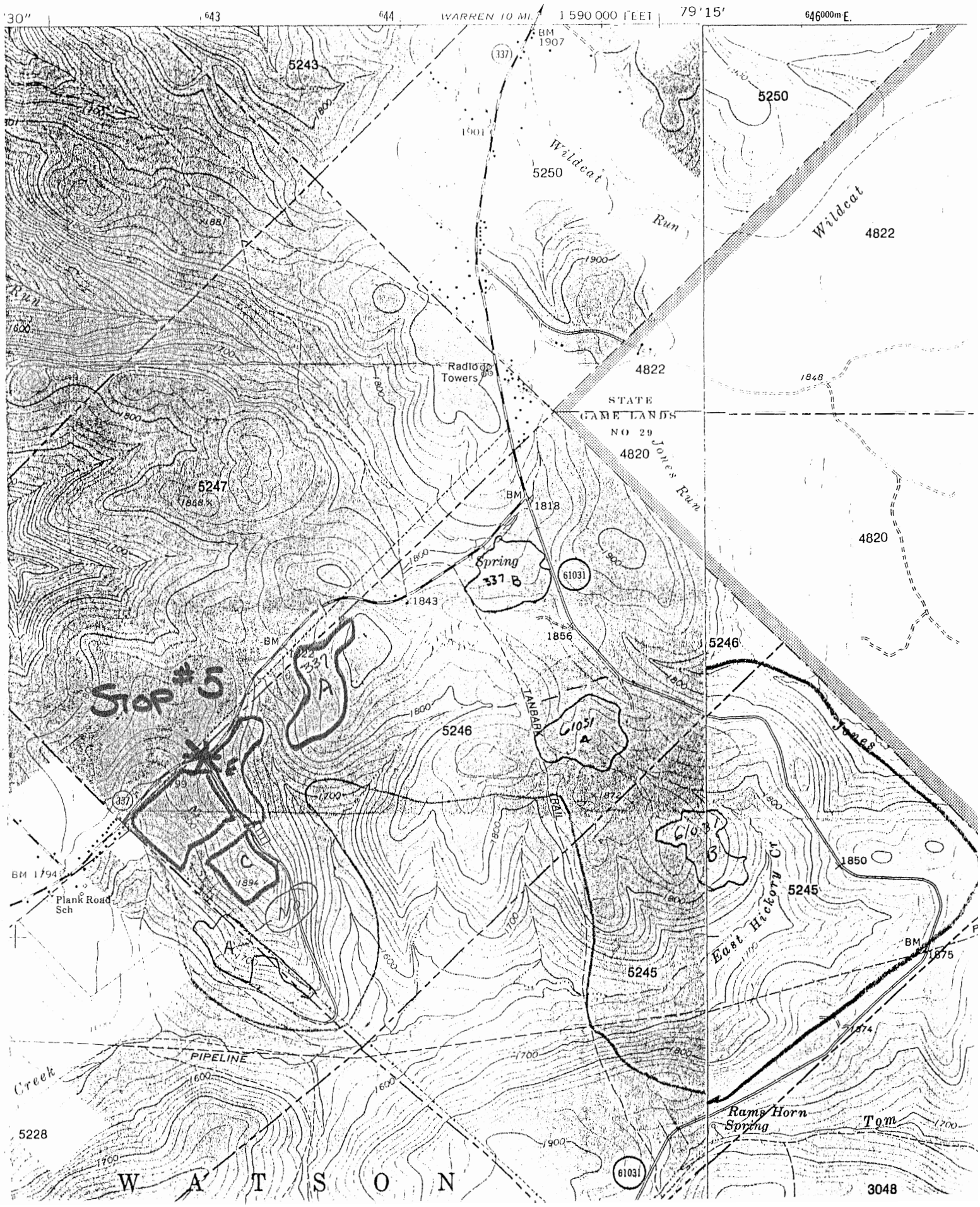
#5


Run
Lenhart Run
LENHART
STOP #3
1866
ROAD
Charley Run
Hedgehog Run
Wilcox
P
E
A
25
29
33
23
24
26
30
28
15
31
36
20
12
21
10
24
17
4
3
18
13
5
6
7
8
1
16
9

Plot #	Oak BA			Oak Tot. BA	Other BA	Tot. BA
	D*	H	G			
1	80		60	140	[illegible]	[illegible]
2	60		10	70	20	90
3	60		40	100	20	120
4	50		50	100	20	120
5	50		–	50	10	60
6	70		20	90	[illegible]	110
7	60		20	80	20	100
8	80		–	[illegible]	[illegible]	100
9	80		20	100	[illegible]	140
10	50		10	[illegible]	20	[illegible]
11	80		[illegible]	110	30	140
12	[illegible]		–	70	[illegible]	110
13	100		[illegible]	[illegible]	[illegible]	150
14	[illegible]		[illegible]	70	[illegible]	110
15	50		–	50	[illegible]	[illegible]
16	[illegible]		20	70	[illegible]	110
Tot. Ft.	1050		300	1350	[illegible]	1740
Ave	65.6		18.8	84.4	27.5	121.9
% of Tot. BA	54.0		16.8	75.4	24.6	
% Oak BA	77.7	–	22.3			

* Includes trees that were dying.


S O N
W A T S O N
337
Slater Run
1867
MA 6.1
BM 1912
BM 1907
Stop #4
Wildcat Run
1901
337
Wildcat Run
Wildcat
1471
1482
Run
Radio Towers
Gate
1848
STATE GAME LANDS NQ 29
Jones Run
BM 1818
Springs
Ground
Spring
1856
18
Jones
Shaw
STATE GAME NO 29
Conklin Run


COBHAM QUADRANGLE
PENNSYLVANIA
7.5 MINUTE SERIES (TOPOGRAPHIC)
UNITED STAT
DEPARTMENT OF THE
GEOLOGICAL SUI
MODIFIED FOR USDA FORES
30"
643
644
WARREN 10 MI.
1 590 000 FEET
79°15'
646000m E.
5243
5250
Wildcat Run
4822
Radio Towers
STATE GAME LANDS NO 29
4820
Jones Run
5247
5246
5245
Spring
337 B
61031
1818
1843
1856
1907
1901
1848
1850
1875
1894
1794
Stop #5
337 A
61031 A
61031 B
61031 C
TANBARK
TRAIL
Plank Road Sch
East Hickory Ct
PIPELINE
Creek
Rams Horn Spring
Tom
5228
WATSON
3048

Oak BA

Plot #	D	H	G	Total Oak	Other	Total
1	30	40	50	120		120
2	10	50	10	70	50	120
3	30	30	40	100	50	150
4	50	10	10	70	30	100
5	50	40	10	100	30	130
6	50	30	20	100	60	160
7	40	10	10	60	50	110
8	10	30	10	50	40	90
9	10	20	10	40	70	110
10	—	40	30	70	30	100
11	10	20	20	50	50	100
12	20	40	40	100	40	140
13	30	40	20	90	30	120
14	30	30	30	90	40	130
15	20	50	30	110	20	130
16	—	30	40	70	50	120
17	40	30	30	100	10	110
18	10	80		90	40	130
19	50	20	10	80	40	120
20	40	20	—	60	80	140
Total =	530	670	430	1130	770	2400
ve BA =	26.5	33.5	21.5	28.1	38.5	120
of Total =	22%	28%	18%	47%	32%	
Oak =	32.1%	40.4%	25.9%			

D = Dead

H = Affected but live

G = Live

Plot #	Oak			Oak Total BA	Other BA	Total BA
	D	H	G			
1	20	–	20	40	40	80
2	10	20	60	90	20	110
3	10	40	20	70	70	140
4	10	40	30	80	80	160
Total	50	100	130	280	210	490
Ave	12.5	25	32.5	70	52.5	122.5
% of Total BA	10.2%	20.4	26.5	57.1	42.9	
% of Oak BA	17.9%	35.7	46.4			
1	70	30	20	120	30	150
2	70	20	10	100	40	140
3	30	30	20	80	–	80
4	60	–	10	70	40	110
5	30	30	40	100	30	130
6	60	30	10	100	30	130
Stals	320	140	110	570	170	740
Ave	53.3	23.3	18.4	95.0	28.3	123.3
% Total BA	43.2	18.9	14.8	77.1	22.9	
% Oak BA	56.1	24.5	19.4			

D = Dead

H = Affected but Live

G = Live